



جامعة قناة السويس
كلية الطب والعلوم الصحية
دفعة بصمة طبيب 31
طب بشري

Ophthalmology

GLAUCOMA

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Group F

اللجنة العلمية لدفعة بصمة طبيب 31

مندوب الدفعة

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VISIT...

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- * Glaucoma pt can see 6/6 only tubular vision so it is called the covered disease of ophthalmology.
- * 3 things in Glaucoma a) visual field b) optic Disk changes c) IOP. then we ~~take~~ talk about the Angle
- * Definition of glaucoma - it is tried of كيفية إخراج العين من العين
New Def :- it is neurogenic multifactorial and causes disease in which the IOP become high which cause optic Nerve change from cuping up to optic Nerve Atrophy and visual field defect, 2) and there is normal tension glaucoma but with optic Nerve chang & visual field defect 3) low tension glaucoma in which the IOP is low but there is optic Nerve chang & visual field defect.
- * Remember the pathognomonic diagnostic & guidelines of treatment of glaucoma is visual field because there is glaucoma with high Normal or low IOP so we depend on the visual field and the second thing is ocular tonography which measure the true IOP & secretion Per min/mm², & Measure outflow Per min/mm².
 - Normally less than 100 = $\frac{\text{True IOP}}{\text{out flow}}$ = و في حالة العين كاحسن بغير
- * Normal IOP = 16 ± 5 mmHg, because of the effect of sclera or lid on the IOP when measure by Goldman's or schiotz tonometer, the best method is ocular tonography.
- * Visual field :- there is central visual field it represent 80° within all direction, Peripheral visual field the upper = ~~50~~ 50° the temporal = 90° the nasal = 60° the lower = 70°
- رصاص بصرى إغلو كوما لينا - اصحاب الفحص مثل عمل الكسور، الأطباء، الممرضين، العلماء
ليني أعضاء، إبياسين وفي تعريف ذكر Neurogenic يعني إلى يستغل CNS.
- * Optic Nerve is form of 1-1.2 million axons fibers which originate from the ganglionic layer of the Retina.

* Diagnostic Field in glaucoma is the Central visual field because the reflection of the optic nerve in the visual field from the 12° - 17° nasally represent the blind spot (absolute scotoma).

* لا يخفى على من عرفت أن الحجاب الحاجز يفرق بين العينين وكونه حاجزاً يمنع انتقال الدم من العين إلى العين.

* ocular tonography

* OCT:- Does not give the glaucoma Pt any benefits except in very early stages but Yemeni Pt comes to clinic in late stages so OCT is with no benefit for the Pt

* in glaucoma the central VF will increase the blind spot then Para central scotoma then Arcuate scotoma then annular scotoma

* in Peripheral VF it cause concentric contraction

مكتوب في اول سطر

يمكن لمرض الجلوكوما ان يدمر تدريجياً يوم الف فايبر ويوم الفين fibers تتبع العصب البصري حتى يحصل tubular vision ومن ثم العمى

* Cup/Disk Ratio :- Normally 0.3

What Does cupping mean or excavation or Fovea?

it means minus - tissue or death of tissue so cup increase ^{يزيد} but the plus + tissue in case of Papilloedema

* the best treatment of glaucoma is surgical due to high tolerance of drug

* Angle of the AC :- to say open or close Angle we have to use gonioscopy.

* Diurnal variation of IOP :- in the morning > in the evening due to at night there is neurohormonal Process during sleep that keep you alive which secret corticosteroids which it maximum peak is in the early morning which ↑ IOP & the Reticular formation & subcortical centers, not more than 2 mmHg.

* Methods of Measurement of IOP:-

Digital methods - Tonometer by

- a) indentation (schiotz) b) Applanation Goldman's c) air Puff d) electronic

e) Perkins

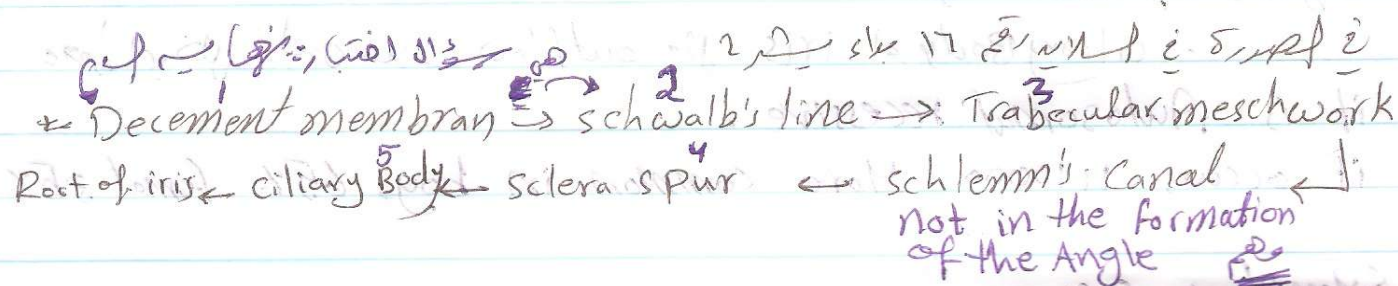
يستعمل لقياس الضغط

Normal Physiological cup ≤ 0.3 (normal)
 Normal large ~~Normal~~ Physiological cup > 0.3 (pathological)
 central visual field $\rightarrow$ blind spot $\rightarrow$ peripheral visual field

Methods to measure VF₀ -

- 1) Goldmann's Perimeter (mechanical)
- 2) Automated Perimeter.

Angle of the Ant chamber situated between periphery of cornea and root of iris, it drains the aqueous formed of Trabecular meshwork and Schlemm's Canal, Examined by gonioscop



* Aqueous Humor : organogenesis started in the first 3 months so any treatment that cross placenta may lead to Afect organogenesis and may lead to glaucoma or other congenital Anomaly.

aqueous humor is formed by ciliary Process $\rightarrow$ Ant chamber $\rightarrow$ Pupil $\rightarrow$ Post chamber $\rightarrow$ Iris plicata $\rightarrow$ episcleral veins $\rightarrow$ aqueous veins $\rightarrow$ Schlemm's Canal $\rightarrow$ Angle of Ant chamber

* Ac depth = 2.5mm - 3mm. • Cavernous sinus $\rightarrow$ Ant ciliary veins $\rightarrow$

Classification of Glaucoma

Congenital Glaucoma

acquired glaucoma

primary Glaucoma

Secondary Glaucoma

open Angle glaucoma

closed Angle glaucoma

open Angle glaucoma

Congenital Glaucoma (Buphthalmos)

5 signs of Congenital Glaucoma
also symptoms.

due to presence of an abnormal mesodermal membrane in the Angle of AC

تعريف الكتلور في الكافرة

1st Pediatric glaucoma results from interensic disease or structural abnormality of the aqueous out flow pathway

Primary glaucoma: Angle of aqueous drainage
structural defect of Schlemm's canal or Cavernous sinus

Mesodermal mem or Barken's membrane

* Secondary Congenital glaucoma: Any abnormality Affecting other regions of the eye.

Ciliary Body or iris for outflow

it is Autosomal recessive.

it occurs 1:10000 More common in boys 65% female 35%

Symptoms & Signs

1- Photophobia 2- Lacrimation (epiphora) 3- blephrospasm
large in Horizontal diameter

normal Horizontal Diameter of Cornea = 11-12 mm in Adult

but in new born from 9.5 - 10.5 mm more than 11.5 mm

is suspicious.
at the age of 1 year from 10.5 - 11.5 mm.

New born IOP = 10-12 mmHg Normally
From 7-8 years = 14 mmHg. 3. for Post graduate

* Any glaucoma from 3 years and above it is not Congenital
it is Primary juvenile glaucoma

* The Primary Pathology in 1st Cong. glaucoma is mesodermal membrane
Barken's membrane or Angular dysgenesis lead to obstruct out flow.

يعني لمرئف اللي عنده غلوكوما يجب ان تفحص كامل اجهاسه . ولكن لمرئف يقول ان نظره كويس
 وقتن لمرئف لا يفهم ان كذا هو Visual field . والذي يقتر Pathognomonic
 ويردده guide line في العلاج والتشخيص وحتا في العلاج بالادوية او الليزر او الجراحه لان
 اذا علمت بمرئف او امعاجم واختصه ان مجال المرئف لمرئف لم يزداد سواء في
 يعني ان العلاج كان صحيح وناجح ولكن اذا زاد مجال المرئف في المرئف يعني ان المرئف
 خست او انخفض العلاج .

slow progressive increase in IOP in absence of Angle closure
 with Progressive cupping of optic Disc and Progressive
 deterioration of visual field (VF) .

في المرئف لم يتكلم عن vision ولكن في جانب الغلوكوما فهم هو (VF) او مجال المرئف ولكن
 في جانب cataract يتكلم عن المرئف vision .

فمرئف الغلوكوما يقول ياكلوا الحماض اسبارة جدا اسبارة المرئف في (المرئف)
 بيتساكنت اسبارة في اسبارة وهذا يعني field تاكل او اسبارة في اسبارة

* obstruction of outflow due to sclerosis it may be
 Pre trabecular, Trabecular, Post trabecular sclerosis but
 the Angle is open.

منه اقول Close Angled

- * in case of Normal angle I can see all the structures
- * in case of close Angle corneo iris contact so can't see structure
- * open Angle but not complet can see schwalbe's line ; Trabecular
 meshwork sclera spure but can't see other structure
- * narrow Angle:- Can't see sclera spure
- * very narrow:- can't see Trabecular meshwork
- * wild Angle:- in myopic Patients
- * Narrow Angle in Hypermetropic Patient may indicate glaucoma

* open Angle glaucoma is commonest typ Affects 1-2% of Population
 of the Age of 50 years but now days some comes from the
 Age of 35-40y , equal in both M & F . bilateral but one
 eye is Affected more than the other.

* open Angle Glaucoma 3thing:- IOP - visual field - optic nerve
 * the visual field is Number 4 below No Dx or Ht with
 out visual field.

Symptoms - Some times Asymptomatic → بورت
 ولكن قد يشي من صراع أو عن ليبي أو قلاخ جان لوب و حدة في العين أو قد يشي من العين

Treatment - medical: miotics (pilocarpine) - Beta-blocker (Timolol or Betaxolol - Prostaglandin analogues (Xalatan - Travatan) Acetazolamid (oral or drops)

pilocarpine works as contraction of longitudinal muscles leading to traction of Trabecular mesh work and increases the outflow & ↓ of IOP.

- * 90% of Aqueous drainage is by Trabecular meshwork
 - * 10% through suprachoidal space so through Prostaglandins Analogs
- Surgical: Trabeculectomy, Trabeculectomy + Antimetabolites such as ~~metamycin c~~ , oligin ~~drop~~

Trabeculectomy: معناه نخل تجويف بين AC و بين conjunctiva و بعض الاحيان اشتد على هذه المنطقة بحيث Adhesions فتكون في youngs (هذا تسمى) antimetabolites لتقادي هذه المنطقة

3- Argon Laser Trabeculoplasty

closed Angle Glaucoma

تعتبر هذه الحالة مرضية تكون الضغط فيها stony hard 70 or above
 و يصاحب صراع شديد و ارتفاع في الضغط و هناك corneal edema و يكون AC Absent or shallow
 و muddy iris و بين حمر hyperemia - كيف تتعامل مع
 1- Admission to Hospital 2- Analgesics & antiemetics
 3- Diuretics 4. pilocarpine

I.v manitol	في حاله نزول الضغط العين و iris بان الحروف و Pupil
→ Iso sorbide	تبدأ بترك و AC بدأ بترك نزل الضغط
→ Acetazolamid	Iridectomy Not iridectomy
	تعمل فتحة بوزن انفسج لا عمل فتحة و نزل الضغط

- * more in hypermetropia , * females > Males
- * Above Age of 40 * Bilateral one eye more than the other

mechanism: - معناه انغلاق العين فترتق الزوايا و iris مع PC و يعمل على دفع iris الى الامام فتعلق بذلك Angle
 فيؤدي الى رفع الضغط العين (iris bombe) و لا يعمل العلاج الا اذا انغلق
 اكثر من 70% من ال angle

* Clinical Picture

- 1) Prodromal: transient attacks of elevated IOP & Headache
Blurring of vision & colored Halos due to corneal edema
- 2) Acute stage: Pain, Vomiting, Ivesion, Lid edema, Corneal edema, shallow AC, mid dilated Pupil, stony hard hazy view of fundus
- 3) Chronic stage:- Peripheral Ant synechia, Glaucomatous cupping Visual field loss
- 4) Absolute stage: blind eye with Pain or with out Pain
eryo or athen قسط ciliary Process

Sinus Trabeculectomy

glaucom fleckensis: Ant, capsule ~~Ant~~ eyes cataract
Post capsule epithelium post Ant eyes

treatment:- slide 46

Secondary Glaucoma

open Angle

closed Angle

slide 48

Secondary glaucoma

ocular

extra ocular

slide 49

slide 50

glaucom fleckensis

Acute Congestive glaucoma

Pseudo xfoliation

Rubeosis → New vasculomition

Keratic Percipitate → uivitis, cells → Keratitis

(9)

Crhost cells in aqueous due to Hge in surgery or other to vitrous

Drugs:- قراءها من الام رقم 61

surgeries:- قراءها من الام رقم 62

Argon laser Trabeculoplasty (ALT) open Angle نعل ل
وهذا نعل على ~~تقليل~~ تقليل لضغط و 8mmHg ونحيت ل الام ل الام على تنبيه ل

* في حال goniotomy او Trabeculotomy - نفع ل الام قطع او افترس
* في حال sinus Trabeculectomy نفع ل الام قطع ثم يفتح sclera ويرفع
ونقطع لسيج ثم يرد flap و يفتح Conjunctiva و يعل Antimetabolite
وذا لتقليل Adhesion و لقطع يافه ل histopathology و لظواهر
و و حدة في الام رقم 65 و 66

ciliary body نعل نعل ل ciliary body عن طريق لثيرة فوق منطقة Pars Plicata

* ocular Hypertention:- و نعل على مياه بيضاء و تم في الام لثيرة
ضبط العين ارتفاع و لكن optic disk و visual field طبيعي لذلك اعطى
- antiglucoma drugs & steroids

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مذكر